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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/779,423

02/13/2004

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EXAMINER

TOOMER, CEPHIA D

ART UNIT

PAPER NUMBER

1714

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/779,423	<b>Applicant(s)</b> THIEL ET AL.	
	<b>Examiner</b> Cephia D. Toomer	<b>Art Unit</b> 1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24, 27-30 and 32-35 is/are rejected.
- 7) ☒ Claim(s) 25, 26 and 31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This Office action is in response to the amendment filed April 12, 2007.

The rejections of the claims over Nalesnik and Nalesnik in view of DeCanio are withdrawn in view of Applicant's arguments.

#### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 32 and 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are rejected because there is no antecedent support in claim 21 for "the minor fuel economy improving effective amount."

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-6, 9-14, 1-24, 27-30 and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Esche (US 20040014612).

Esche teaches a multifunctional fuel additive that improves fuel economy comprising a hydridized, acylated olefin copolymer (see abstract). Preferred

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copolymers for use in the invention are copolymers of ethylene and one or more C<sub>3</sub> to C<sub>23</sub> olefins (propylene) and optionally a nonconjugated diene (see paragraph 6). The number average molecular weight of the copolymer is between 700 and about 500,000 (see paragraph 10). An ethylenically unsaturated carboxylic acid such as maleic anhydride is grafted onto the polymer backbone (see paragraph 12). The carboxylic reactant is grafted onto the polymer backbone in amount from about 0.5 to about 6.0 molecules of carboxylic reactant per molecule of polymer backbone (see paragraph 14). Esche uses coupling agents such as aminomercaptotriazoles to derivatize the copolymer compound (see paragraphs 19 and 25). In preparing the coupled acylated olefin copolymers of Esche, the molar charge of coupling compound per mole of ethylenically unsaturated carboxylic reagent (maleic anhydride) can vary depending upon the choice of coupling compound (see paragraph 27). This teaching suggests that the proportion may be optimized.

Esche teaches that the hybridized olefin copolymer can be added directly to the fuel (diesel) in an amount from 0.001 to about 0.5 wt %. Esche teaches that conventional additives may be present in the fuel composition (see paragraphs 28, 29 and 30).

Esche differs from the claims in that he does not specifically teach the structure of the claimed aminomercaptotriazole. However, Esche's general teaching of aminomercaptotriazole suggests the claimed aminomercaptotriazole.

5. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Migdal (US 5,075,383).

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Migdal teaches the same dispersant additive as set forth in the present invention (see abstract; col. 2, lines 35-68; col. 3, lines 1-56; col. 3, line 65 through col. 4, lines 1-28). Migdal contemplates using the additives in fuel compositions (see col. 10, lines 35-49). Migdal teaches the limitations of the claims other than the differences that are discussed below.

In the first aspect, Migdal differs from the claims in that he does not specifically teach a diesel fuel composition. However, it would have been obvious to one of ordinary skill in the art to use the additive in diesel fuel because Migdal contemplates using the additive in fuel compositions and this teaching suggests all fuel compositions.

In the second aspect, Migdal differs from the claims in that he does not specifically teach the ratio of amino-aromatic polyamines to grafted copolymer. However, no unobviousness is seen in this difference because Migdal teaches reacting the polymer with the amino-aromatic polyamine and this teaching suggests a ratio of at least 1:1.

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Migdal in view of DeCanio (US 5,925,151).

Migdal has been discussed above. Migdal fails to teach the sulfur content of the diesel fuel or the use of additional additives. However, DeCanio teaches these differences.

DeCanio teaches a diesel fuel composition comprising a detergent additive wherein the fuel may be a low sulfur diesel fuel. The diesel fuel should contain less than 500 ppm sulfur (see abstract; col. 2, lines 56-61).

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It would have been obvious to one of ordinary skill in the art to add conventional diesel additives because DeCanio teaches that the additives will perform their attendant function. With respect to the use of the low sulfur diesel fuel, the skilled artisan recognizes that U S environmental regulations dictate the use of low sulfur fuels.

7. Applicant's arguments have been fully considered but they are not persuasive.

Applicant argues that Esche fails to disclose or suggest a diesel fuel composition comprising an effective amount of the claimed soot dispersant additive because Esche does not disclose an aminomercaptotriazole as set forth in the present claims.

While the disclosure of Esche mentions polythiol amines, it is clear from the claims that he does not desire polythiol amines but thiol amines. Therefore, the examiner maintains that Esche's general teaching of aminomercaptotriazoles suggests the claimed aminomercaptotriazole.

Applicant argues that Esche does not teach the claimed method because the additives of Esche provide dispersancy properties and improved fuel economy.

Esche teaches fuel additives that are within the scope of those of the present invention. Esche teaches that these additives are present in the fuel in an amount from 0.001-0.5 wt % (10-5000 ppm). Applicant is claiming a range from 50-5000 ppm of the additive. Prior to the present invention, claim 21 was directed to a method of improving the fuel economy of a diesel engine. Therefore, if the present additive improves fuel economy and soot dispersancy when present in the fuel in an amount of 50-5000 ppm, it would be more than reasonable to expect that the additive of Esche would perform the same function.

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8. Claims 25, 26 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record fails to teach or suggest the claimed method wherein the amino-aromatic polyamines are N-arylphenylenediamine.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cephia D. Toomer whose telephone number is 571-272-1126. The examiner can normally be reached on Monday-Thursday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Cephia D. Toomer  
Primary Examiner  
Art Unit 1714

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